PROD - 5

ASSESSMENT OF INTENSIVE RAILROAD ANALYSIS RELATED TO SOVIET ICBM DEPLOYMENT

1. PROBLEM:

To assess a proposal that collection and analysis of selected, detailed data on the Soviet railroad system and transport activity be expanded in an effort to identify and locate Soviet long-range ballistic missile deployment.

2. FACTS BEARING ON THE PROBLEM:

a. More than a year ago the USIB declared that the highest priority intelligence problem confronting the U.S. was that of estimating with confidence the threat posed by deployed Soviet ICBMs.

b. About the same time, GMAIC, supported by the Hyland Committee, concluded that despite the variety of factors which might influence Soviet site selection, the only one which can be singled out with any degree of confidence (irrespective of the launch concept adopted) is that rail transport will be relied upon for major logistic support.

c. As a result of this conclusion the Soviet railroad network has been regarded as the key to deployment intelligence, and the sighting of unusual transport equipment, as well as spurs, sidings and branch lines for which no apparent economic justification exists, has come to be viewed as a potential indicator of ICBM/IRBM deployment.

d. Despite highest priority and intensive efforts, however, the U.S. intelligence community has made virtually no progress

during the last year in acquiring direct knowledge of the status, magnitude, and rate of growth of the threat posed by Soviet long-range ballistic missile deployment.

c. If positive action against this major intelligence target is to be undertaken, the only means available appears to be the systematic collection and analysis of detailed information related to selected portions of the Soviet rail network and transport activity.

3. DISCUSSION:

a. Background

(1) In response to the USIB decision regarding priority, and the CMAIC enumeration of indicators, various collection and analysis actions keyed to the Soviet rail transport network were undertaken in the community. Collection guidance for various sources was reviewed and expanded, including the 25X1B0c [redacted] 25X1B0c Several reports during the past year demonstrated that briefed sources can observe and report accurately the location of unusual equipment or installations.* The bulk of the collection and analysis effort, however, was aimed at the observation and reporting of unique indicators of guided missile activity and not at the procurement of detailed railroad information applying to the stated problem. Analysis efforts have been keyed largely to evaluation of

* For example, IR-1250520, and IR-1250547.

subsequent reports of unique sightings on the one hand, and to examination of the broad factors likely to govern ICBM/IRBM deployment on the other. The latter activity has resulted in the conclusion that although the factors involved in Soviet selection of sites for ICBM deployment are known to the West, the Soviet "weighting" of each is not known; therefore, the precise location of launching sites cannot be predicted solely on logical grounds. Until the Soviet mode of deployment and configuration of ICBM equipment and installations are identified and located in at least one case, therefore, an extremely large area of the Soviet Union must be regarded as potentially suitable for deployed ICBMs, and a great deal of uncertainty must continue regarding the precise status of this program. It is apparent that considerable value should be attached to intelligence activities which will improve the probabilities of either (a) locating and identifying at least one operationally deployed ICBM unit, or (b) as a minimum more narrowly defining the possible areas of ICBM deployment.

(2) Recent investigation has indicated that no intelligence community component has undertaken to consolidate all available information pertaining to Soviet railroad installations and transport activities that might be in direct support of ICBM deployment. Furthermore, there has been no systematic attempt to assure the comprehensive collection of information on many of the more suspect rail nets which have not been

travelled by foreigners during the past few years.

(3) In order to utilize new data effectively, however, the intelligence community will require more detailed studies of certain rail lines than are currently available, in conjunction with studies of other factors affecting missile deployment. The product of these, in turn, can be used to aid additional collection efforts, as well as for evaluation of other types of information including that from future reconnaissance satellites.

(4) An ORR all-source research team recently was organized on an ad hoc basis to explore the feasibility of producing accurate studies of Soviet rail lines from available information. Two rail lines, totalling about 600 km. and representing 0.5 percent of the total Soviet network, were selected for intensive study. One, Vyazma-Orsha, is located in European USSR, while the other, Omsk-Barabinsk, is located in Central Siberia. Both have been open to Western official travel and travel over them has been fairly heavy, though the Vyazma-Orsha line, while the heavier travelled, was not reported on to the extent expected.

(5) The ad hoc research team was able to demonstrate that, at least for some rail lines, available material can be used to produce accurate diagramatic descriptions which, when kept current, can enable us to monitor the status of these lines and possibly to eliminate some from further consideration as being in direct logistic support of operational ICBM sites.

25X1X1

[redacted]

25X1X11 [redacted] Due to reporting by recent (1959) travelers of known sidings and spurs but no new ones, it is believed that the tentative conclusion remains valid. It is recognized, however, that both lines should continue under periodic surveillance with changes in them being reported as they occur.

(6)

25X1X11 [redacted]

25X1X11 [redacted] Other source materials were generally disappointing, though perhaps they would have proved more useful on lines passing through less populated areas. Prisoner of war and defector reporting was almost non-existent and was distinctly inferior to other observational intelligence.

25X1X11

[redacted]

Aerial and ground photography did not prove valuable as source materials, the former because of obsolescence and the latter partially due to failure of the photographer to report precise locations of objects, and partially due to a tendency (probably in response to requirements) to photograph station buildings and major railroad yards instead of evidence of spur lines and sidings departing the main line.

(7) The Industrial Register, CIA, and the Department of Engineer Intelligence, AMS, were selected as being the most logical intelligence community components to participate in the pilot study research on the two railroad lines. Both responded willingly, but performance in each case demonstrated that should either be requested to undertake expanding the pilot study to include additional Soviet rail lines, close initial supervision and guidance must be provided.

(8) Although considerable useful information was available, lack of detail at times prevented an accurate assessment of some data. The more critical problem areas were: absence of exact (kilometer mark) locations of reported spurs and sidings, omissions of some spurs and sidings evaluated by collectors as having no intelligence interest, and careless or hasty observations which resulted in main line tracks being reported as sidings.

(9) Work on the pilot study indicated that some information collection and analytical personnel were unaware of the potential indicators of railroad involvement in ICBM

deployment. For example, Army Map Service analysts, who have community responsibility for Soviet railroad alignments, were not aware that sidings and spurs are regarded by missile analysts as possible keys to deployment locations. Likewise, attaches [redacted] 25X1B0c are not required to watch for and report all sidings and spurs on a highest priority basis as perhaps warranted by the USIB decision on priority and the possible intelligence return that might result.

b. Analytical and Collection Problems

(1) The results of the pilot study on-the-whole were impressive, but as noted, the experience gained in this study clearly indicates that the present collection and analysis effort in the field of Soviet railroad transportation is inadequate for the solution of this problem.

(2) Travel reports of attaches received since 1950 cover only about 50 to 55 percent of the USSR railroad network, and reports of other overt travelers increase the total to only 60 percent. The bulk of these reports are over two years old. The chances that these reports provide sufficient information to identify the locations and functions of the railroad sidings, spurs and branch lines on the travelled portion of the network range from good to poor, for there has been no statement of priority on the collection of information on this subject. Moreover, there is no analytical program currently underway in the intelligence community

which requires the identification and dissemination of intelligence on all sidings, spurs and branch lines even though information on them does exist in the travel program and other sources. Therefore, the chances of intelligence of the type suggested by the pilot study becoming available under current collection and analysis programs are practically nil.

(3) An attempt to provide the type of information suggested will require a carefully planned, directed, and augmented collection and analysis program. Collectors will have to be directed to secure current information on the locations and functions of sidings, spurs and branch lines through extensive overt travel and special means. Analysts will have to be directed to record the locations and functions of these facilities, and through the use of all sources attempt to produce intelligence on facilities estimated to be associated with the USSR ballistic missile program. The analysis program will have to be carefully coordinated with the collection program and should proceed concurrently.

(4) The analysis program breaks down essentially into three major functions: intelligence requirements, data compilation, and evaluation. The first task will be to produce meaningful requirements, to secure priority for the collection of the intelligence, to allocate priority to specific railroad lines and to suggest means for collection. The second task will be to provide direction for data compilation which would

comprise primarily the compilation of strip maps of segments of the railroad system from existing sources showing the locations of all sidings, spurs and branch lines beyond the choke points of major yards and terminal areas. These strip maps would carry annotations detailing the functions which have been identified for the various facilities. The evaluation function would consist of analysis of the information provided by data compilation and the application of information from all additional sources and in all intelligence categories (economic, geographic, military, etc.) to the intelligence produced in data compilation. It would provide guidance for the collectors through the requirements function, and finally would prepare reports on the association of specific locations with long-range ballistic missiles for consideration and evaluation by community specialists on missile deployment.

(5) If travelers are properly briefed and are assigned the task only of identifying the locations of all sidings, spurs and branch lines on one side of the train, past experience in the

25X1B0c

[redacted] would indicate that there is a reasonable chance that all of the facilities can be identified as to location. Identification of the function of facilities by travelers is more difficult, and necessarily a wide margin of error is introduced, depending on the background and knowledge of the traveler, his opportunity for observation, etc. Other sources, including USSR railroad literature, and geographic, economic and military intelligence, generally can

be counted on to augment information supplied by travelers, and will have to be relied on exclusively for intelligence on railroad lines not open to overt travelers.

(6) Within the last two and a half years, lines not covered by travel reports of attaches and other overt travelers comprise about half of the system. Clandestine collection components indicate that most lines not heretofore travelled probably can be travelled at least occasionally by briefed travelers, although with little control over time and circumstances. If this program is established in the scope and magnitude described above, therefore, it would appear that it has a reasonable chance of identifying at least some of the locations along the railroad that may be associated with special weapons. It should at least narrow the search area by an impressive magnitude. This latter judgment is supported by the negative conclusion drawn from the pilot study.

(7) Although the program could be expected to identify the locations or narrow the search area for fixed sites primarily, the program through proper collection and research may also be expected to increase our knowledge of the rail mobile system and suggest appropriate locations for its deployment. By-products should also result from the program that may include more information on special weapons production facilities, transportation equipment for special weapons, origin and destination of raw materials and components for the special weapons program and personalities and military units associated

with it.

c. Magnitude and Distribution of Task

(1) Magnitude. There are approximately 120,000 kilometers of railroad routes in the USSR, about 60,000 of which, in light of presently compiled information, cannot be excluded as being possibly involved in ICBM support activities. The identification, based on information from all sources, of the locations and functions of all sidings, spurs and branch lines on this latter network would be a task of considerable magnitude. It is clear, however, that such an effort would substantially reduce the areas considered as possible deployment locations. Based on our experience with the pilot study, and with transportation, economic and geographic research, we believe that the total initial job (Phase I), including data compilation, intelligence requirements, evaluation and analysis and cartographic functions, would require up to 40,000 man hours if attempted solely by ORR elements. For continuing maintenance of such a program (Phase II), we believe 15 percent of the effort would suffice. In other terms, to accomplish the job for approximately half of the entire USSR rail network within one year would require about 20 ORR people full-time. Maintenance could be accomplished with about four or five. It is apparent that undertaking the total job in ORR would cause substantial dislocation in both the geographic and economic research programs.

(2) We have learned, in the course of discussions with personnel

of the Engineer Intelligence Directorate, Army Map Service, that they would be willing, upon formal ORR request, to commit themselves to produce during calender 1960 completed studies on all rail lines in the five most probable launch areas. These studies would take the form of completed line diagrams reflecting all their available information, and the studies would be undertaken according to our priority listing. EID is in a position to accomplish this because the study would coincide with their basic MIS commitment on the USSR transport network, and because they are willing to defer certain other internal research projects.

(3) Acceptance of such assistance would reduce to less than ten the number of full-time ORR people needed during Phase I of the effort. With a large measure of the most time-consuming work done, i.e., research, compilation and conversion to line charts, the ORR share would include the following:

(a) Compilation of additional data from sensitive sources and preparing overlays for the basic graphic material supplied by the Army Engineers.

(b) Compilation of other kinds of data needed to determine the probable role of each railroad section in ICBM logistics.

(c) Preliminary evaluation of the probable role of each track section in ICBM logistics.

(d) Origination of additional collection guidance materials designed to complete and maintain our data base, and to direct collection against specific points which we have

isolated and established as potentially of critical significance. In our thinking, we have considered that the reproduction and physical distribution of the product can be handled by the appropriate ORR Staffs. Imaginative leadership and executive direction of the program, which we regard to be incumbent upon ORR, is an essential ingredient in such a program. This aspect of the program contributes considerably to the ORR total workload.

d. Alternatives Confronting ORR

(1) There are several alternative ways that ORR could staff up to meet its residual responsibilities under such a program. However, in light of the nature of this rather complex undertaking, we believe that an organized task force from the appropriate office elements under central direction would be by far the most effective means. Among more apparent advantages are (a) a single leadership point for total program direction; (b) development of increased productivity; (c) accumulation of valuable expertise at judgment points in the evaluation process; and, (d) flexibility in manning the effort. We would expect such a Task Force on Phase I to endure for one year, assuming a favorable evaluation of the effort at the end of the first 90 days.

e. Summary

(1) We should not blink the fact that the above effort is a high-cost, laborious, indirect analytic technique which, at its very best, will probably fall somewhat short of providing us

with the ultimate answer. We also should recognize explicitly that there almost certainly will be a fairly long period of input into collection guidance before substantial improvements are apparent. There will also be even longer input period before information improvement will be reflected in a significant improvement in our "judgment confidence". The above returns can appear only after successful completion of a series of steps. We can, however, expect some significant short-term improvements in our present analytic capability. For example, the completion of the first rail line study will provide us with a full context against which to assess the information currently received and from which we can develop pointed collection direction aimed at further refining our understanding. We believe that undertaking an effort along the lines outlined above would result in a substantial improvement of our knowledge on the Soviet ICBM logistic problem.

4. CONCLUSIONS:

a. Possibility of Direct Returns

We consider that the net improvement in our knowledge which could result from such an effort would probably take one of the two following forms: (a) a reliable narrowing of the search areas within which we believe the Soviet ICBMs to be deployed or (b) identification of one or more ICBM sites, their characteristics and associated activities and facilities. Either result would constitute a significant improvement in our present knowledge regarding the Soviet ICBM program, although positive identification of a site would obviously

be of the most direct and immediate value.

b. Indirect Benefits

We are virtually certain that we will realize several side-benefits which in our judgment would remedy certain search and analysis deficiencies of the past and which would materially improve our capability to deal with the Soviet ICBM logistics problem in the future. These are: (a) First, we would have for the first time a consolidation of all the data relating to this analytic approach to the ICBM logistics problem; (b) second, this improved data base would almost surely lead to more accurate analysis of future information and to judgments of greater confidence; (c) third, we would have established and in operation a USIB collection, processing and analytic effort which would assure maximum use of this analytic technique for the future; and (d) finally, we would have a consolidated data base from which we could give far more precise instructions to collectors than heretofore feasible.

c. Requirements

The Army Map Service is prepared to undertake the data compilation portion of the program. It is not possible to estimate accurately at this time the number of ORR personnel which would be required to carry out the collection guidance and evaluation portions of the program. However, we have arbitrarily selected 5 as a reasonable number at least for the initial planning and implementation of the program, on a trial basis. This should include one representative each from St/I, S/TR, D/GG, D/GC, and I/GM, with the understanding

that specialists in appropriate E and G Area divisions will be available on a consultation basis in connection with efforts to determine the probable function of specific spur and branch lines. The group should begin functioning by mid-January. The ultimate number of full-time ORR personnel required can be better determined after the program has been underway for several months, but we doubt that there will be a requirement for more than 8-10 persons at any stage of the program. We believe the group might be comprised of 5 analysts from ERA, 2 geographers and at least one cartographer from GRA, and one representative of St/I.

Don't need full time cartographer.

5. RECOMMENDATIONS:

a. General

That the AD/RR undertake responsibility for initiating a systematic effort aimed at (1) consolidating our present knowledge of the Soviet rail system and activities related to ICBM logistics and (2) energizing and directing portions of the U.S. collection system to assure continuing application of this analytic technique against the Soviet ICBM problem.

b. Specific Action

That the AD establish an all-source ORR Working Group, as outlined in CONCLUSION c., above, charged with the responsibilities of consolidating, analyzing and reporting all pertinent data; of providing guidance to community elements participating in the analytical effort; and, of preparing appropriate requirements against collection resources.

c. That the AD formally request the Engineer Intelligence Department, AMS to undertake the systematic production of line studies for the five priority search areas of the USSR during calendar 1960.